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FIFTH BI-MONTHLY PROGRESS REPORT  
UNIVERSITY OF ALASKA  
ERTS PROJECT 110-4  
May 31, 1973

E7.3 1063.7  
CR-132096

- A. TITLE OF INVESTIGATION: Survey of the Seasonal Snow Cover in Alaska
- B. PRINCIPAL INVESTIGATOR/GSFC ID: Gunter Weller/UN681
- C. PROBLEMS IMPEDING INVESTIGATION: None
- D. PROGRESS REPORT:

1. Accomplishments during reporting period: We are now receiving the first data from the snow break up in Alaska. We have started the first look analysis of the breakup by describing snow and ice features of interest, and screening data for further analysis. Our work during the reporting period has consisted of two parts mainly, field observations of the snow cover in various parts of Alaska, and preparation of meteorological data to be used in the analysis of the snow breakup.

We note that the new Log E photographic processing of images received from NASA reduces the contrast between snow-covered and snow free areas. We have not completely evaluated this effect. However, it may be necessary for us to reprint some or all images of special interest.

Our field work includes measurements of snow depth and areal extent, together with measurement of temperature, density and hardness profiles from top to bottom of the snow pack in selected places. The areal extent was estimated visually - either directly or from photographs. These observations have been carried on at frequent intervals in the Interior (Fairbanks area) and on the Arctic Slope near Barrow and Prudhoe Bay. Observations have also been made along the highways across the Alaska Range 6-10 April and 26 May and across the Chugach mountains 6-10 April. Observations were also made by air from Fairbanks to Anchorage on 7 May. Our work in the Arctic has included flights from Fairbanks to Barrow, Prudhoe Bay, Arctic Village and the McCall Glacier. These were timed to coincide with satellite passes whenever possible. However most of the field observations have been paid for by other funds (University of Alaska Geology Department, International Biological Program (NSF) and McCall Glacier Research project (NSF)). This fact combined with weather problems has caused some of our field time to be spent at times when the satellite was not overhead.

(E73-10637) SURVEY OF THE SEASONAL SNOW  
COVER IN ALASKA Bi-monthly Progress  
Report (Alaska Univ., Fairbanks.)  
HC \$3.00

3 p  
CSCI 08L

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Unclass  
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N73-24396

Our time at Barrow and Prudhoe Bay was as follows:

15-16 Februar , 13, 14 March, 17-20 April,

13-17 May, 19-21 May and 1-6 June.

Time on Arctic Village-McCall Glacier fieldwork coincided with ERTS Pass, ie., 21-24 May.

On the McCall Glacier we carried out a complete snow survey. This ties in with a continuous mass balance study made since 1969. The snow accumulation from the 1972-73 winter was exceptionally slight. At Barrow and Prudhoe Bay our work also includes radiation measurements and climatological measurements.

We have obtained these field observations with only a minimal expenditure of funds from our ERTS project - namely 1/3 of the charter air cost of one trip and expenses for one highway trip - no salary charges were made to ERTS during these field studies.

We also had a standing order with an experienced pilot and photographer to take photographs in the Copper River area of the transect. He was prepared to take photographs during clear weather passes of the satellite during April and May. Unfortunately cloud conditions were poor on nearly all passes and no aerial photography was done.

In addition to our field studies we are using data from the cooperative snow surveys run by the Soil Conservation Service (USDA). The network of stations extends from the Pacific Coast in the south to Arctic Village in the north

2. Plans for next reporting period: At the present time the snow melt has only started on the Arctic Slope. Our field observations of the snow in that area will continue for another 1-2 weeks. We expect that we will receive most of the ERTS data of the breakup in the near future. It is still too early for us to evaluate the repetitive ERTS coverage of the snow cover retreat in the several climatic zones of Alaska. Unfortunately, there has frequently been heavy cloud cover. One valuable contribution from the ERTS data will be a measure of the extent and continuity of this cloud cover. This will be especially valuable in Alaska since most of the weather stations are on the coast - indeed, there are no inland stations on the Arctic Slope.

The emphasis in our analysis of regional variations of the breakup will be adjusted to available cloud-free ERTS data. The supporting data will consist of our own field observations and snow course data from the Soil Conservation Service,

together with radiosonde data from 5 and climatological data from about 10 stations in the transect zone across Alaska.

E. SIGNIFICANT RESULTS: None

F. PUBLICATIONS

- a) In preparation:  
Build up of the seasonal snow cover in Alaska in the fall of 1972. See Fourth Bi-Monthly Progress Report.
- b) In press:  
None.
- c) Published:  
C. Benson, Snow Cover Surveys in Alaska from ERTS 1 Data (Paper presented at the ERTS-1 Symposium in Washington.)

G. RECOMMENDATIONS: None

H. REVISED STANDING ORDERS: None

I. ERTS IMAGE DESCRIPTORS FORM

J. DATA REQUESTS: Request submitted on August 22, 1972.